UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION I
1 CONGRESS STREET, SUITE 1100 (CPE)
BOSTON, MASSACHUSETTS 02114-2023

FACT SHEET

DRAFT NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT TO DISCHARGE TO THE WATERS OF THE UNITED STATES

NPDES PERMIT NO.: MA0023027

NAME AND ADDRESS OF APPLICANT:

CPL Management, LLC
Executive Park West II
4720 Old Gettysburg Road, Suite 311
Mechanicsburg, PA 17055-8412

NAME AND ADDRESS OF FACILITY WHERE DISCHARGE OCCURS:

Renaissance Manor of Westfield
37 Feeding Hills Road
Westfield, MA 01085

RECEIVING WATER: Westfield River (Westfield River Watershed - MA32)

CLASSIFICATION: B-warm water fishery

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I. Proposed Action, Type of Facility, and Discharge Location

The above named applicant has applied to the U.S. Environmental Protection Agency (EPA) for an NPDES permit to discharge into the designated receiving water, the Westfield River (see Figure 1). The facility is engaged in the collection and treatment of domestic wastewater. The discharge is from a private nursing home wastewater treatment facility. This permit will expire five (5) years from the effective date.

The original owner, Valley View Nursing Home, Inc., applied for an NPDES permit in 1974 however, a final permit was never issued. Ownership of the facility was transferred from Valley View Nursing Home, Inc. to the current owner, CPL Management, LLC, in 1999. CPL Management, LLC submitted a new application on February 18, 2000.

The MassDEP issued a Notice of Noncompliance to the permittee after conducting an inspection at the facility in January 2007. The permittee entered into an Administrative Consent Order with the State on July 18, 2007 and is addressing violations noted during the inspection. A copy of the Administrative Consent Order is in the NPDES Administrative Permit file.

II. Description of Discharge

The current discharge from the Renaissance Manor Wastewater Treatment Plant (WWTP) consists of treated domestic wastewater. (See Attachment A of this fact sheet for effluent data).

III. Limitations and Conditions

The effluent limitations of the draft permit and the monitoring requirements may be found in the draft NPDES permit.

IV. Permit Basis and Explanation of Effluent Limitation Derivation

A. General Requirements

The Clean Water Act (CWA), 33 U.S.C. " 1251 et. seq. prohibits discharge of pollutants to waters of the United States without a National Pollutant Discharge Elimination System (NPDES) permit, unless such a discharge is otherwise authorized by the CWA. The NPDES permit is the mechanism used to implement technology and water quality based effluent limitations and other requirements, including monitoring and reporting. This draft NPDES permit was developed in accordance with various statutory and regulatory requirements established pursuant to the CWA and any Massachusetts statutes and regulations. The regulations governing the EPA NPDES permit program are generally found at 40 CFR Parts 122, 124, 125 and 136.

EPA is required to consider technology and water quality based requirements when developing permit limits. The criteria and standards that EPA must use to determine technology-based requirements are set in 40 CFR Part 125, Subpart A. Requirements under Section 301(b) of the CWA and/or requirements established on a case-by-case basis under Section 402(a)(1) should be included in the permit.

The CWA requires that dischargers satisfy both minimum technology and water quality requirements. Technology-based requirements are found in Section 301(b) of the CWA. Section 301(b)(1)(A) of the CWA required the application of Best Practicable Control Technology Currently Available (BPT) with the statutory deadline for compliance having been July 1, 1977, unless otherwise authorized by the CWA. Section (301)(b)(2) of the CWA requires the application of Best Conventional Control Technology (BCT) for conventional pollutants, and Best Available Technology Economically Achievable (BAT) for non-conventional and toxic pollutants. The compliance deadline for BCT and BAT was as expeditiously as practicable, but in no case later than three years after the date such limitations are promulgated and no later than March 31, 1989.

EPA has not promulgated effluent guidelines for privately owned treatment plants treating domestic wastewater. Using Best Professional Judgment (BPJ) as described at Section 401(a)(1) of the Clean Water Act, EPA has used the secondary treatment requirements found at 40 CFR Part 133 for Publicly Owned Treatment Works (POTWs) as the basis for establishing technology-based effluent limits for this permit. The treatment technologies applied to this wastewater are the same as those used at POTWs and the wastewater characteristics are also very similar.

Under 301(b)(1)(c) of the CWA, discharges are subject to effluent limitations based on water quality standards and to the conditions of State certifications under Section 401 of the CWA. Receiving stream requirements are established according to numerical and narrative standards adopted under State and/or Federal law for each stream use classification. Furthermore, the permit must conform to the conditions established pursuant to a State certification under Section 401 of the CWA that meet the requirements of 40 CFR 124.53 and 124.55. EPA regulations pertaining to permit limits based upon water quality standards and state requirements are contained in 40 CFR 122.44 (d). For purposes of applying EPA and MassDEP policies regarding procedures for establishing water quality-based limits and conditions, the discharge has been considered a POTW, given the similarities between the treatment technologies and the wastewater being treated.

Section 101(a)(3) of the CWA specifically prohibits the discharge of toxic pollutants in toxic amounts. The Commonwealth of Massachusetts has a similar narrative criteria in its water quality regulations that prohibits such discharges (see Massachusetts 314 CMR 4.05(e)). The draft permit does not allow for the addition of chemicals in amounts that would produce a toxic effect to aquatic life.

The general conditions of the permit are based on 40 CFR 122.41 and consist primarily of management requirements common to all permits. The effluent monitoring requirements have been established to yield data representative of the discharge under authority of Section 308(a) of the CWA in accordance with 40 CFR 122.41(j), 122.44(i), and 122.48.

B. Receiving Water Classification and Water Quality Condition

The Westfield River, at the point of discharge, is classified as a Class B water body by the MassDEP. Class B waters shall be of such quality that they are suitable for the designated uses of protection and propagation of fish, other aquatic life and wildlife; and for primary and secondary contact recreation.

The MassDEP Westfield River Watershed 2001Water Quality Assessment Report (MassDEP:CN 090.0: April 2005) did not have data to evaluate the water quality conditions of segment (MA32-06) of the Westfield River, which receives the Renaissance Manor WWTP discharge.

The designated use attainment was "unassessed". However, the lower 1.0-mile of the segment immediately upstream (MA32-05) was assessed as "impaired" for aquatic life and aesthetics. The probable cause was listed as municipal storm water runoff,

The MassDEP Report, Proposed Massachusetts Year 2006 Integrated List of Waters indicates that segment MA32-05 upstream of the Renaissance Manor WWTP discharge is in Category 5 and lists turbidity, odor, color and nuisance aquatic plants as the problems. Thus, there is a requirement for the development of a Total Maximum Daily Load (TMDL) analysis to determine allowable pollutant loadings. Segment MA32-06 is listed as "unassessed".

C. Facility Description and Discharges

The Renaissance Manor of Westfield is a nursing home with a capacity of 80 beds. The facility discharges treated sanitary wastewater to the Westfield River via a 500-foot long, 14-inch diameter concrete pipe. The discharge point is approximately 9.3 river miles from the confluence with the Connecticut River. The existing wastewater system, in operation since the early 1970's, is designed to provide secondary wastewater treatment for an average daily flow of 10,000 gallons per day (gpd). The treatment facility consists of a 12,000 gallon extended aeration tank, a 3,000-gallon secondary clarifier/sedimentation tank and one chlorination chamber designed to provide a minimum of 15 minutes of contact time at design flow. Sodium hypochlorite is added through a drip feeder, which is adjusted daily based on the flow rate (which is proportional to the number of beds in use). Average flow is approximately 7,000 gpd with maximum daily flows of about 8,000 gpd. See Figure 1 for the locations of the nursing home and the discharge.

Sludge is wasted to a holding tank where it is settled and disposed of off-site to the City of Westfield publicly owned treatment works (POTW) by a licensed septage hauler.

D. Stream Hydraulics and Flow Dynamics

The receiving water flow at which effluent limitations are determined is established in the Massachusetts Surface Water Quality Standards [314 CMR 4.03(3)(a)] as the lowest mean flow for seven consecutive days to be expected once every ten years. This value is known as the "7Q10" and is determined from a statistical analysis of river flow records, normally by the use of United States Geological Survey (USGS) stream gage records. The USGS maintains a stream gage on the Westfield River located approximately ¾ mile downstream of the Renaissance Manor discharge (see Figure 1). This gage has been used to calculate the 7Q10 flow value and to determine a dilution factor, which was used in the analyses of effluent limits.

The USGS gage (#01183500) has flow records since 1915. The most recent calibration of the 7Q10 was conducted by USGS in 1999. The 7Q10 value for the gage has been calculated to be 80.52 cubic feet per second (cfs). This flow, and the effluent flow of 10,000 gpd (0.01573 cfs) were used to calculate a dilution factor of 5,206.

7Q10@Renaissance Manor = 80.52 cfs
Treatment system design flow =10,000 gpd = 0.01 MGD
$0.01 \text{ mgd} \times \frac{1.547 \text{ cfs}}{1 \text{ mgd}} = 0.01547 \text{ cfs}$

Dilution Factor Calculation

(7Q10@Renaissance Manor+ Design Flow)/Design Flow = Dilution Factor@ Renaissance Manor

(80.52 cfs + 0.01547 cfs)/0.01547 cfs = 5,206

Dilution Factor @Renaissance Manor = 5,206

E. Proposed Permit Effluent Limitations and Conditions

E.1: Flow

The monthly average flow limitation for the discharge is based on the design flow of 10,000 gpm. The draft permit requires continuous monitoring of flow, and also requires that the daily maximum flow each month during each month be reported.

E.2: BOD_5 and Total Suspended Solids [TSS]

The draft permit includes BOD_5 and TSS average monthly concentration limits of 30 mg/l and average weekly BOD_5 and TSS concentration limits of 45 mg/l. The draft permit includes BOD_5 and TSS average monthly and weekly mass loadings, and 85% percent removal limits for BOD_5 and TSS. BOD_5 and TSS daily maximum reporting requirements have also been included in the draft permit. The frequency of monitoring for BOD_5 and TSS are 1/week.

These limits are based on Best Professional Judgment (BPJ) as described at Section 401(a)(1) of the Clean Water Act. The wastewater characteristics are very similar to treatment technologies applied to those used at POTWs therefore, secondary treatment requirements found at 40 CFR Part 133 for Publicly Owned Treatment Works (POTWs) are the basis for establishing BOD_5 and TSS effluent limits for this permit.

E.3: Bacteria and pH

E. coli bacteria and pH are based on State Certification requirements under Section 401(d) of the CWA, 40 CFR 124.53 and 124.55, and water quality considerations. It should be noted that E. coli is the new bacteria criteria for fresh water systems (not associated with beach areas) which were adopted by MassDEP in the recently promulgated Surface Water Quality Standards [314 CMR 4.00: December 29, 2006] and approved by EPA on September 19, 2007. The limits are 126 cfu/100 geometric monthly mean and 409 cfu/100 maximum daily (this is the 90% distribution of the geometric mean of 126 cfu/100 ml). The frequency of monitoring is 2/week, which is needed to determine the reliability of the chlorination system.

E.4: Total Residual Chlorine

The in-stream total chlorine criteria are 11 ug/l (0.011 mg/l) for chronic levels and 19 ug/l (0.019 mg/l) for acute levels. Based upon the large dilution factor, the calculated water quality-based chronic limit would be 57.3 mg/l and the acute limit would be 99 mg/l. However, EPA has established technology-based monthly average and daily maximum limits of 1.0 mg/l using BPJ under the authority granted in Section 401(a) of the Clean Water Act. These limits are also required by MassDEP's "Implementation Policy for the Control of Toxic Pollutants in Surface Waters (February 23, 1990).

E.5: Whole Effluent Toxicity [WET]

Based on the potential for toxicity resulting from this discharge, and in accordance with EPA regulation and policy, the draft permit includes acute toxicity limitations and monitoring requirements. (See, e.g., A Policy for the Development of Water Quality-Based Permit Limitations for Toxic Pollutants, 50 Fed. Reg. 30,784 (July 24, 1985); See also, EPA's Technical Support Document for Water Quality-based Toxics Control (EPA/505/2-90-001; March, 1991).

The principal advantages of biological techniques are: (1) the effects of complex discharges of

many known and unknown constituents can be measured only by biological analyses; (2) bioavailability of pollutants after discharge is best measured by toxicity testing including any synergistic effects of pollutants; and (3) pollutants for which there are inadequate chemical analytical methods or criteria can be addressed. Therefore, toxicity testing is being used in conjunction with pollutant specific control procedures to control the discharge of toxic pollutants.

Pursuant to EPA Region I and MassDEP policy, discharges having a dilution ratio of greater than 100, as is the case with Renaissance Manor of Westfield, require acute toxicity testing twice per year with an acute limit of an LC50 >50%. Each test must include the use of the daphnid, *Ceriodaphnia dubia* and must be conducted in accordance with EPA Region I protocol, found in permit Attachment A Freshwater Acute Toxicity Test Procedures.

As a condition of this permit, the permittee may request that the testing requirements be reduced if the discharge is shown to be non-toxic. Note that there has been no toxicity testing done for this facility. After four consecutive WET tests that demonstrate compliance with the permit limit, the permittee may submit a written request to EPA seeking a review of the toxicity test results and a reduction in testing frequency. The EPA and MassDEP will review the test results and other pertinent information to make a determination. The permittee is required to continue testing as specified in the permit until the permit is either formally modified or until the permittee receives a certified letter from the EPA indicating a change in the permit conditions. Such changes could include a reduction in testing frequency or the elimination of the testing requirement.

E.6: Metals

Due to the very large dilution available to this discharge, metals from the discharge do not have a reasonable potential to result in an exceedance of the ambient water quality criteria for metals. Copper is normally the most likely metal to present water quality problems. The in-stream ambient criteria for copper are 5.2 ug/l (acute) and 3.8 ug/l (chronic) [at an in-stream hardness of 35 mg/l]. Typical secondary WWTP effluent is 25-50 ug/l total copper. At the calculated dilution factor of 5,206, the change in instream copper concentration due to the discharge from this facility would be less than 0.01 ug/l (50 ugl/5206), meaning there is no reasonable potential for the discharge to cause or contribute to exceedances of water quality standards. Therefore, no limitations for copper or other metals have been included in the draft permit. The Whole Effluent Toxicity [WET] testing required by the permit includes requirements for analyzing metals in the discharge and in the upstream dilution water; thus a data base on the effluent concentration of these metals will be established.

E.7: Nutrients

Similar to the analysis provided in the preceding section regarding the reasonable potential for the discharge of copper to cause or contribute to exceedances of water quality standards, the high dilution factor minimizes the instream impact of phosphorus from this discharge. If the discharge concentration of phosphorus from this discharge approached 20 mg/l (a concentration greater than typical secondary treatment with no phosphorus removal) the resulting concentration in the Westfield River would be less than 0.003 mg/l (20 mg/l/5206) which is far less than the Gold Book- recommended criteria of 0.1 mg/l. Therefore, no limit has been established for total phosphorus.

The draft permit does require monitoring of the total phosphorus concentration.

The permit may be reopened and modified if the effluent data or future water quality information shows that the discharge does have the reasonable potential to cause or contribute to exceedances of water quality standards.

V. Antidegradation

Because this is the first NPDES permit issued for this discharge, it must be reviewed by MassDEP and shown to be consistent with its antidegradation policy. The Commonwealth of Massachusetts has determined that there will be no lowering of water quality and no loss of existing water uses, thus making the discharge insignificant, in accordance with the antidegradation provisions of the Massachusetts Surface Water Quality Standards (314 CMR 4.00).

VI. Essential Fish Habitat Determination

Under the 1996 Amendments (PL 104-267) to the Magnuson-Stevens Fishery Conservation and Management Act (16 U.S.C. 1801 et seq. (1998)), EPA is required to consult with the National Marine Fisheries Service (NMFS) if EPA's action or proposed action that it funds, permits, or undertakes, may adversely impact any essential fish habitat (EFH). See 16 U.S.C. 1855(b).The Amendments broadly define essential fish habitat as waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity. See 16 U.S.C. 1802(10). Adversely impact means any impact, which reduces the quality and/or quantity of EFH. See 50 C.F.R. 600.910(a). Adverse effects may include direct (e.g., contamination or physical disruption), indirect (e.g., loss of prey, reduction in species fecundity), site-specific or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions.

Essential fish habitat is only designated for fish species for which Federal Fisheries Management Plans exist. See 16 U.S.C.1855(b)(1)(A). EFH designations for New England were approved by the U.S. Department of Commerce on March 3, 1999 and include the Westfield River.

EPA has determined that a formal EFH consultation with NMFS is not required due to the minimal flow from the facility and the significant dilution available. A copy of the draft permit and fact sheet will be sent to NMFS during the public comment period.

VII. Endangered Species Act Evaluation

Section 7(a) of the Endangered Species Act of 1973, as amended ("Act") grants authority to and imposes requirements upon Federal agencies regarding endangered or threatened species of fish, wildlife, or plants and habitat of such species that have been designated as critical. Section 7(a)(2) of the act requires every Federal agency, in consultation with and with the assistance of the Secretary of Interior, to insure that any action it authorizes, funds, or carries out, in the United States or upon the high seas, is not likely to jeopardize the continued existence of any listed species or results in the destruction or adverse modification of critical habitat. The National Marine Fisheries Service (NMFS) administers Section 7 consultations for marine species and anadromous fish. The United States Fish and Wildlife service (USFWS) administers Section 7 consultations for freshwater species.

The Department of Interior has listed the Shortnosed Sturgeon (Acipenser brevirostrum) as endangered for portions of the greater Connecticut River watershed including the Westfield River. The EPA is in communication with NMFS and USFWS regarding the issuance of the NPDES permit for this facility and potential impacts from the discharge to the Shortnose Sturgeon (Acipenser brevirostrum).

VIII. State Certification Requirements

EPA may not issue a permit unless the Massachusetts Department of Environmental Protection (MassDEP) with jurisdiction over the receiving waters certifies that the effluent limitations contained in the permit are stringent enough to assure that the discharge will not cause the receiving water to violate State Water Quality Standards. The staff of the MassDEP have reviewed the draft permit and advised EPA that the limitations are adequate to protect water permit will be certified. EPA has requested permit certification from the MassDEP and expects that the draft permit will be certified.

IX. Comment Period and Procedures for Final Decisions

All persons, including applicants, who believe any condition of the draft permit is inappropriate must raise all issues and submit all available arguments and all supporting material for their arguments in full by the close of the public comment period, to Betsy Davis, Office of Ecosystem (CMP), U.S. EPA, 1 Congress Street, Suite 1100, Boston, MA 02114-2023 and Paul Hogan, Department of Environmental Protection, Division of Watershed Management, 627 Main Street, Worcester, MA 01608. Any person, prior to such date, may submit a request in writing for a public hearing to consider the draft permit to EPA and MassDEP. Such requests shall state the nature of the issues proposed to be raised in the hearing. A public hearing may be held after at least thirty days public notice, whenever the Regional Administrator finds that response to this notice indicates significant public interest. In reaching a final decision on the draft permit the Regional Administrator will respond to all significant comments and make these responses available to the public upon request.

Following the close of the comment period, and after a public hearing, if such hearing is held, the Regional Administrator will issue a final permit decision and forward a copy of the final decision to the applicant and each person who has submitted written comments or requested notice.

X. EPA and MassDEP Contacts

Additional information concerning the draft permit may be obtained between the hours of 9:00 a.m. and 5:00 p.m., Monday through Friday, excluding holidays from:

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